What is claimed is:

1. An assay for determining the cyclooxygenase-2 activity of a sample comprising the steps of:

(a) adding

(1) a human osteosarcoma cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-2 inhibitor, and

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a).

2. An assay for determining the cyclooxygenase-2 activity of a sample according to claim 1 comprising the steps of:

(a) adding

(1) a human osteosarcoma cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-2 inhibitor, and

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a),

wherein the cell preparation comprises 10^3 to 10^9 whole cells of osteosarcoma per cc, or 50 to 500 ug of osteosarcoma microsomes per ml of preparation; and 0.1 to 50 μl of arachidonic acid per ml of preparation.

3. An assay for determining the cyclooxygenase-2 activity of a sample comprising the steps of:

(a) adding

(1) a human osteosarcoma cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-2 inhibitor, and

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a)

(c) corrolating the amount of prostaglandin E_2 produced with cyclooxygenase-2 activity,

wherein the osteosarcoma cell preparation consists essentially of osteosarcoma 143.98.2 microsomes.

4. An assay according to claim 3 wherein the osteosarcoma 143.98.2 microsomes are substantially free of endogenous arachidonic acid.

5. An assay according to claim 3 wherein the microsomes are contacted with an amount of delipidized serum protein effective to reduce the amount of endogenous arachidonic acid in the microsomes by a factor of at least approximately 2.

6. An assay for determining the cyclooxygenase-2 activity of a sample comprising the steps of:

(a) adding

(1) a human osteosarcoma cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-2 inhibitor, and

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a),

(c) corrolating the amount of prostaglandin E_2 produced with cyclooxygenase-2 activity,

wherein the human osteosarcoma cell preparation contains no recombinant vector.

7. An assay for determining the cyclooxygenase-2 activity of a sample comprising the steps of:

(a) adding

(1) a human osteosarcoma cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-2 inhibitor, and

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a)

(c) corrolating the amount of prostaglandin E_2 produced with cyclooxygenase-2 activity,

wherein the osteosarcoma cell preparation consists essentially of whole cells of osteosarcoma 143.98.2.

8. A composition comprising:

(a) an osteosarcoma cell preparation, having 10^3 to 10^9 osteosarcoma cells per cc of cell preparation or 50 to 500 μg of osteosarcoma microsomes; and

(b) 0.1 to 50 μl of arachidonic acid per cc of cell preparation.

9. A composition according to claim 8 comprising 8×10^4 to 2×10^6 osteosarcoma 143.98.2 whole cells per cc of cell preparation or 100 to 400 μg of osteosarcoma 143.98.2 microsomes; and 10 to 20 μl of peroxide-free arachidonic acid per cc of cell preparation.

10. A composition according to claim 9 wherein the microsomes are substantially free of endogenous arachidonic acid.

11. An assay for determining the cyclooxygenase-1 activity of a sample comprising the steps of:

(a) adding

(1) a COX-1 cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-1 inhibitor;

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a)

(c) corrolating the amount of prostaglandin E_2 produced with cyclooxygenase-2 activity.

12. An assay according to claim 11 wherein the COX-1 cell preparation consists essentially of whole cells of U-937.

13. An assay according to claim 11 wherein the COX-1 cell preparation consists essentially of U-937 microsomes.

14. An assay for determining the cyclooxygenase-1 activity of a sample according to claim 10 comprising the steps of:

(a) adding

(1) a COX-1 cell preparation,

(2) a sample, said sample comprising a putative cyclooxygenase-1 inhibitor;

(3) arachidonic acid; and

(b) determining the amount of prostaglandin E_2 produced in step (a),

wherein the cell preparation comprises 10^5 to 10^8 whole cells of U-937 per cc, or 1 to 10 mg of U-937 microsomes per ml of preparation; and

0.1 to 50 μl of arachidonic acid per ml of preparation.

15. An assay according to claim 14 wherein the cell preparation comprises 8×10^5 to 1.5×10^6 whole cells of U-937 per cc, or 1 to 5 mg of U-937 microsomes per ml of preparation.

16. Human Cyclooxygenase-2 cDNA which encodes protein of SEQ ID NO:10.

17. Human cyclooxygenase-2 cDNA according to claim 15 comprising the coding region which is bases 97 to 1909 of FIG. 2 (SEQ. ID. NO. 11:).

18. Human cyclooxygenase-2 which is shown in FIG. 1 (SEQ. ID. NO. 10:).

19. A transformed host that expresses cyclooxygenase- 2 as shown in FIG. 1 (SEQ. ID. NO. 10:) comprising:

(a) a mammalian or eukaryotic expression vector; and

(b) a sequence encoding human cyclooxygenase-2 comprising bases 97 to 1909 as shown in FIG. 2 (SEQ ID NO:11) or encodes protein of FIG. 1 (SEQ ID NO:10).

20. A system according to claim 19 wherein the expression vector is a vacinia or baculovirus vector.

21. A system according to claim 19 wherein cyclooxygenase-2 is expressed in COS-7 cells.

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